U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF THE MARSHFIELD AREA, OREGON.

BY

C. W. MANN AND JAMES E. FERGUSON.

[Advance Sheets—Field Operations of the Bureau of Soils, 1909.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1911.

[PUBLIC RESOLUTION—No. 9.]

JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided*, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the Congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF THE MARSHFIELD AREA, OREGON.

BY

C. W. MANN AND JAMES E. FERGUSON.

[Advance Sheets—Field Operations of the Bureau of Soils, 1909.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1911.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., February 9, 1911.

SIR: I have the honor to transmit herewith the manuscript of a report and map covering the soil survey of the Marshfield area, Oregon. This work was undertaken at the earnest solicitation of citizens of the State, whose requests bore the indorsement of the Hon. Willis C. Hawley, Representative for the district within which the area lies.

I have the honor to recommend that this be published as advance sheets of the Field Operations of the Bureau of Soils for 1909, as authorized by law.

Very respectfully,

MILTON WHITNEY,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary of Agriculture.

CONTENTS.

ILLUSTRATIONS.

FIGURE.

MAP.

SOIL SURVEY OF THE MARSHFIELD AREA, OREGON.

By C. W. MANN and JAMES E. FERGUSON.

DESCRIPTION OF THE AREA.

The Marshfield area is situated on the west side of the Coast Range in the southwestern part of Oregon. It is bounded on the north by parallel 43° 30′ north latitude. The southern boundary, beginning on the east side, follows parallel 42° 50′ north latitude for a distance of approximately 19 miles and then bends south, pursuing a general southwesterly direction, reaching the coast at a point about 1½ miles southeast of Port Orford. The eastern boundary is formed by the

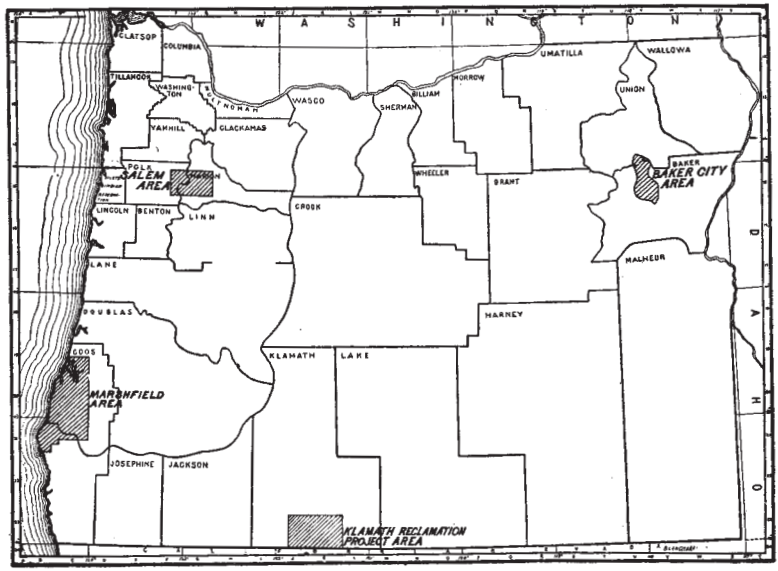

FIG. 1.—Sketch map showing location of the Marshfield area, Oregon.

meridian 124° west longitude, and the area extends to the Pacific Ocean on the west, having an ocean frontage north and south of nearly 53 miles. The maximum width from east to west, about 29 miles, is reached at Cape Blanco.

The area includes all the Coos Bay and the northern third of the Port Orford quadrangles, published by the United States Geological Survey. It comprises slightly more than one-half of Coos County and a small part of northwestern Curry County. The area surveyed in

Curry County includes the only extensive body of comparatively level agricultural land in the county.

In general the area consists of extensive, rough, hilly uplands, dissected by innumerable minor valleys, with comparatively broad valleys marking the location of the rivers and larger sloughs. The only part of the area having a uniform or level topography lies in the Coastal Plain. In the portion north of the Coquille River and west of a line running north through Myrtle Point, the uplands resemble a highly dissected and eroded plateau. This is a region of numerous choppy hills, the higher hills having a common elevation of 500 to 700 feet. The summits are usually well rounded or capped by narrow terraces and the side slopes are frequently steep and abrupt, though occasionally terraced or undulating. To the south and east the country assumes a more rugged aspect, and elevations of 1,500 to 2,000 feet or more are reached in the outlying ridges of Sugarloaf and Blue Mountains, and in the higher parts of Curry County. The roughest parts of the uplands occur in this region, and much of the land is too rough and broken for agriculture.

There are three well-defined areas of depression in the relief of the region. These are, first, the main body and inlets of Coos Bay and the Coos River Valley, in the northern third of the area, second, the comparatively broad valley and tributary valleys of the Coquille River crossing the central portion of the area, and, third, the low belt of land along the coast south of Coos Bay included in the Coastal Plain.

The physiographic division included in the Coastal Plain forms a continuous belt of land ranging from 2 to 4 miles in width, which extends from the southern base of the Seven Devils Hills to Port Orford, or approximately two-thirds the length of the area. From a high point the plain appears as a low, narrow depression or shelf along the coast, of flat topography, which is bordered on the east side by the steep slopes of the various ranges of hills near the coast. Contrasted with the more extensive area of hilly uplands to the east the flatness of the plain is accentuated. A closer examination of the topography shows that on the landward side near the base of the hills the plain reaches an elevation of nearly 200 feet throughout a considerable portion of its length and has a poorly defined slope toward the coast, where it usually terminates abruptly in a low sea wall or cliff. The surface is undulating or flat. The maximum elevation, 225 feet, is reached at Cape Blanco. West of Langlois and for some distance north the plain is depressed and lies only a few feet above the level of high tide. Along the water front it is frequently bordered by a narrow belt of sand dunes. In many places the surface has been deeply incised by the narrow valleys and stream courses. In the southern section of the Coastal Plain, however, the

valleys are broader and the streams have formed rather extensive alluvial plains, as seen along Floras Creek and the Elk and Sixes Rivers. The uplands of the area are thickly covered with original or second-growth forests consisting mainly of fir, white and red cedar, spruce, and hemlock, with a dense undergrowth of bushes, shrubs, ferns, and grass. In the more remote parts of the survey some extensive areas remain covered with the original or virgin forests.

The valley of the Coquille below Myrtle Point ranges from one-quarter mile to upward of 2 miles in width. Between Riverton and Norway the river plain reaches its greatest extent, being nearly 2 miles in width throughout the greater part of this section of the valley and furnishing the largest area of cultivable bottom lands in the survey.

The drainage of the northern part of the area is discharged into Coos Bay through Coos River and the various sloughs and inlets of the bay. The southern two-thirds of the area is drained by the Coquille River and its tributaries and by the Sixes and Elk Rivers and the smaller streams crossing the extreme southern part of the area. Near the coast the minor streams occasionally have their outlets obstructed by the shifting sand or dunes and form lagoons or intermittent swamps, such as Garrison Lagoon north of Port Orford and the lagoons north of the Coquille River. Of similar origin are the lakes—New Lake, Crooks Lake, and Davidson Lake—formed by the discharging of the streams upon the lower part of the Coastal Plain or by the backing in of tidewater.

Coos Bay is one of the largest natural harbors for ocean-going vessels in the northern coast region. It is the center of the commerce of the area. At the present time the only outlet for the products is by water to northern or southern coast points. The bulk of the shipments pass through Coos Bay, though a considerable quantity of lumber and other products are shipped from the mouth of the Coquille River at Bandon. The construction of a line of railroad, which is at present projected, connecting Coos Bay with the main lines of railroad in the interior of the State, would greatly facilitate the marketing of agricultural products and tend to develop industries that are dependent on more rapid transportation than is available at the present time. The agricultural as well as the industrial development of the region has been greatly retarded by the lack of transportation facilities.

The Coos Bay, Roseburg and Eastern Railroad furnishes rail connection between Marshfield and Myrtle Point. The greater part of the local traffic between the towns and the farming districts along the Coquille and Coos Rivers is by steamboats and private launches. With the exception of the main wagon road between Marshfield and the upper Coquille River and the stage roads running from Myrtle

Point and Sumner the country roads are largely unimproved. In many parts of the country the unfavorable condition of the roads naturally tends to discourage settlement and the production of crops for market.

The population of Coos and Curry counties is made up chiefly of Americans, with a considerable number of Scandinavians, mainly Swedes, and other nationalities. Around Coos Bay and in the Coquille River Valley there has been a marked increase in the population during the last four or five years. To a great extent this has been due to the development of lumbering and related industries.

Marshfield, at the head of Coos Bay, is the largest town and the principal industrial center of the area. The population in 1909 is estimated at about 4,200. It is an important shipping point for the lumber, coal, dairy, and other farm products of the area. North Bend, in common with Marshfield, has experienced a rapid development in the last few years, and is a town of about 2,500 inhabitants. It is the center of active milling and shipping operations on Coos Bay.

Coquille, Bandon, and Myrtle Point are important towns in the Coquille River Valley, the largest being Coquille, the county seat of Coos County, which has a population of about 3,000. Bandon, situated at the mouth of the Coquille River, is the shipping point for the lumber produced in the mills in the lower Coquille Valley. The salmon canneries at Bandon and the butter and cheese factories in other parts of the valley represent local industries of importance in this section.

The great timber resources of the region have led to the extensive development of the lumbering industry. The lumber mills on Coos Bay and the Coquille River include some of the largest and most modern plants on the Pacific coast for the manufacture of unfinished lumber. The extensive deposits of coal, of semi-bituminous quality, have made the mining of coal an industry of considerable promise.

CLIMATE.

That part of the Northwest lying west of the Coast Range in Washington and Oregon is said to have the most equable climate in the United States. Clear, cool summers and a comparatively long "rainy season" during the winter months are the typical climatic features. The Marshfield area, lying within this general region, departs little, if any, from the general conditions.

The following tables compiled from the records of the Weather Bureau give the monthly and annual mean temperature and precipitation at Bandon and Fairview and the dates of earliest and latest killing frosts at Fairview:

Normal monthly, seasonal, and annual temperature and precipitation at Bandon and Fairview.

Month.	Bandon.							Fairview.	
	Temperature.			Precipitation.				Temperature.	Precipitation.
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.		
	°F.	°F.	°F.	Inches.	Inches.	Inches.	Inches.	°F.	Inches.
December	47	64	28	11.4	6.3	16.1	0.0	44.7	10.08
January	45	70	14	11.5	11.3	23.1	1.1	46.4	9.98
February	45	69	18	8.3	2.7	10.9	1.1	47.2	8.91
Winter	46			31.2	20.3	50.1	2.2		
March	47	74	24	7.7	7.2	18.5	0.6	50.5	4.76
April	50	79	30	5.4	1.4	5.7	0.0	53.1	3.78
May	53	85	37	3.7	1.0	1.6	0.0	57.8	1.64
Spring	50			16.8	9.6	25.8	0.6		
June	57	78	40	1.8	5.5	1.5	0.0	61.9	1.14
July	58	79	38	0.5	0.1	0.0	0.0	61.7	0.57
August	58	78	39	1.1	0.0	0.0	0.0	59.1	2.14
Summer	58			3.4	5.6	4.5	0.0		
September	56	92	36	2.6	0.6	6.2	0.0	54.5	4.76
October	52	89	32	5.2	6.4	9.8	0.0	49.7	10.51
November	49	74	24	8.0	5.3	7.6	0.0	45.9	11.05
Fall	52			15.8	12.3	23.6	0.0		
Year	51	92	14	67.2	47.8	104.0	2.8	52.7	69.32

Dates of first and last killing frosts at Fairview.

Year.	Last in spring.	First in fall.	Year.	Last in spring.	First in fall.
1900	Feb. 13	Nov. 21	1906	Apr. 3	Oct. 20
1901	Apr. 15	Nov. 11	1907	Apr. 27	Dec. 17
1902	Apr. 27	Nov. 5	1908	May 10	Sept. 23
1903	Apr. 11	Nov. 17	1909	May 2	Sept. 16
1904	Apr. 1	Dec. 3	Average	Apr. 14	Nov. 3
1905	May 2	Oct. 19			

The records of the Fairview station indicate that the average temperature for July and August is 60.4°. The coldest months, January and February have an average temperature of 46.8°. The variation is greater inland from the coast. In the vicinity of Coquille the monthly mean temperature is about 6 degrees higher in summer and lower in winter than occurs on the coast at Bandon. In the

coast districts the temperature of the warmest days does not usually exceed 80°, and during the winter months rarely falls below 20° above zero.

The summer weather is invigorating. Clear skies and light breezes are generally experienced during this season of the year. The higher degree of summer heat in the interior produces earlier ripening of corn and grain crops. Wheat, oats, and corn are better adapted to the eastern than the western portion of the area because of the variation in temperature.

At Bandon the first killing frost in the fall occurs usually about November 25 and the last in the spring about March 10. At Fairview the average dates are November 3 and April 14, respectively, though the dates show wide variation from year to year.

The rainy season usually extends from the last of October to the middle of April. The mean annual precipitation at Bandon is about 67 inches. The records of the Bandon station show that under normal conditions about 85 per cent of the precipitation occurs during the months of October to April, inclusive. December and January are the months of heaviest rainfall, while July and August are generally almost free from rain and constitute a short "dry season." Protracted spells of rainy and misty weather extending over two weeks or more are not infrequent during the wet season, though short periods of clear, cool weather usually occur at frequent intervals.

In general the climatic conditions of the area are very favorable for the growth and maturity of most cultivated crops of the temperate regions, and especially for the production of winter-growing forage crops in connection with dairying.

AGRICULTURE.

Lands around Coos Bay were first taken up by members of the Coos Bay colony in 1853. In the next few years other settlers emigrated to this section of the State, notably those forming the Baltimore colony, who settled in the upper Coquille Valley. The early settlement of the country was invited by the rich natural resources and mildness of the coast climate, and mining, lumbering, stock raising, and agriculture were all engaged in to some extent. The lumbering industry has overshadowed other lines of development, but agriculture has made slow and substantial progress. The production of crops has been largely confined to the bottom lands along the rivers and larger streams. At the present time these cultivated lands rank in productiveness and value with the best farming lands in the more thickly settled parts of the State.

The agriculture of the area may be summarized as consisting mainly of dairying and the production of the various crops incidental

to this type of farming, and to a less extent of general farming, the production of hay, grain, vegetables, and some deciduous fruits. In certain sections of the area the raising of cattle and sheep is profitable. The development of agriculture has been largely confined to the parts of the area which are accessible from the rivers and larger streams. Few attempts have been made to farm extensively the hilly or upland portions, and a relatively small proportion of the area capable of agricultural development is improved or classed as farm lands.

The first permanent settlers in the southern part of Coos County and in Curry County began the raising of cattle for market on the small stretches of open prairies which were found in these sections. The cattle were fitted for market in the fall and driven across the country to Roseburg to the railroad or shipped by water to San Francisco.

The production of milk and the manufacture of butter and cheese have for a great many years been the most important industry of the farmers of the area. Many of the farms are equipped with private creameries, while larger independent or cooperative creameries are located on Coos Bay, in the Coquille River Valley, and in other parts of the farming districts. The cheese factories at Marshfield, Myrtle Point, and elsewhere take a large part of the milk produced in these sections. Milk is sometimes sold by contract for the season at a set price, but more generally payment is based on the content of butter fat, and the price varies with the prevailing market price of butter. The principal markets for the butter and cheese products are Portland and San Francisco.

The dairy herds are mainly of the Jersey and Durham breeds. Herds of grade Holsteins are also used. Many pure-bred dairy animals are found in the herds on the Coquille and Coos River districts, but the number of such animals is relatively small.

The general average production of the dairy herds could undoubtedly be greatly increased by an improvement in the quality of the grade stock. Many herds contain animals of low productiveness which tend to reduce the profits of dairying. The care exercised in handling the milk and the sanitary conditions of the dairies vary greatly with the practice of individuals.

The raising of beef stock is a relatively important industry in the coast sections of the area and in the hills of Curry County. Sheep and goats are also grazed in Coos County, the flocks reaching 10,178 head in 1899.

In general, farming in the area is directed toward the production of crops used in connection with dairying. Wheat and barley are not produced in sufficient quantities to supply the local demand for these products. The chief money crops of the majority of farmers

are potatoes, onions, beans, tomatoes, and other vegetables, and bush and tree fruits, all of which are generally in demand at good prices in the towns and lumber camps. In many cases, however, the income of the farms is derived entirely from the sale of milk or butter and no attempt is made to produce crops for market. The friable soils of the bottom lands are well adapted to the truck crops. Large yields of potatoes of fine quality are produced and this crop has been shipped to outside markets in seasons of good prices. Burbank, Early Rose, and Carmen No. 2 are the chief varieties of potatoes grown. Most truck crops are produced with a small amount of labor and often increase the income on the dairy farms.

Soiling crops are usually grown as summer feed for dairy stock. Field corn, red and white clover, peas, and vetch are the principal forage crops. During recent years silos have been adopted in some cases, and the raising of corn for ensilage has increased in the warmer sections of the interior of Coos County, which are best adapted to this crop. Silos have not as yet come into general use on the larger farms. The large yields obtained of root crops, including carrots, beets, mangel-wurzels, and rutabagas, suggest their use during the winter months as a substitute for ensilage where provision for the latter has not been made.

In the production of grain local variations of climate affect the adaptation of the crops to certain parts of the area. Corn and the grains—wheat, barley, and oats—have not in general been successful crops along the coast in the western part of the area. In well-sheltered locations occasional crops are secured. The best success with these crops is had in the interior at Coquille and eastward, oats being especially productive on the soils of the river bottoms. Corn, when grown for the grain, is restricted to interior situations. It is frequently cut too green for use as ensilage. When grown for this purpose it should be allowed to become as fully matured as possible, thus reducing the proportion of water and increasing its value as a stock feed. This crop requires early planting on well-drained land to insure proper ripening in this locality.

Kale produces well upon many of the lowland soils. It has also given good results in parts of the uplands, when planted at the most favorable time and given proper cultivation. As a green feed for the winter months this crop could probably be more extensively grown with profit, as it is known to withstand temperatures below the freezing point, and produces its greatest growth during the winter season. Kale is usually transplanted from germinating beds to the field about July 1, and is cut during January and February. Yields of 40 tons to the acre of green stalks and leaves are sometimes secured. Root crops and kale are both very productive under local conditions,

and are valuable succulent feeds for dairy stock during the winter months.

Hay occupies a relatively large proportion of the area under cultivation. Oats are largely grown as a hay crop. Red and white clover and a mixture of rye grass and orchard grass are used both as soiling and hay crops.

A crop rotation which is well adapted to the local conditions consists of corn one year, potatoes one year, rye, grass, and clover hay two years, after which the land may remain as pasture for two or more years before being plowed for the cultivated crop. The soils of the hills and uplands are frequently seeded with white clover and bluegrass after clearing and before the large stumps are removed. The original seeding often produces pastures which are maintained for 10 years or longer. Alsike clover is well adapted to the moist bottom lands not sufficiently well drained for tilled crops, though it has not come into general favor as a green feed.

In recent years an increasing interest in fruit growing has developed. Apples, pears, plums, and cherries are produced, but principally in small orchards for domestic purposes. Many small plots were set out to orchards 15 or 20 years ago, but these were generally poorly located and neglected. Little attention has been given to pruning or to cultivation and spraying, with the result that many of these orchards are at present unproductive or produce inferior fruit. The farmers who are interested in fruit growing are gradually giving more attention to the care and management of their orchards and fruit of excellent quality is grown. The most promising varieties of apples are the Gravenstein, Baldwin, Spitzenberg, Rhode Island Greening, Tompkins King, and Wealthy. As more interest is shown in fruit growing new varieties especially adapted to the local climatic conditions may be introduced. The most favorable locations for fruit occur in the more level parts of the hill lands and upon the valley terraces along the Coquille River and its branches. The production of strawberries and bush fruits is limited to supplying the local markets. These fruits develop excellent quality and are very productive.

Labor for farm work is frequently rather scarce. The higher wages paid at the lumber camps and mills draw the most efficient labor to other occupations than farming. Americans, Germans, and Swedes are employed as milkers and for general work on the farms. Butter makers receive from $50 to $60 a month and board. Farm hands receive an average wage of $2 a day for 10 or 12 hours' work, and $35 by the month, including board.

The size of the farms in the more thickly settled districts along the Coos and Coquille Rivers ranges from 60 to 160 acres or more.

The farm usually includes some bottom land, which is cleared and cultivated, the remaining area consisting of timber land which is usually used as pasture for stock. The hill lands are generally held in 160-acre homesteads, which are uncleared, or in timber claims. Extensive tracts are held by lumber companies, or are included in railroad grants.

The improved land in the dairy farms along the Coos and Coquille Rivers and in the section near Langlois and Denmark, in the southwestern part of the area, is held at $150 to $200 an acre for bottom land. Areas which have been cut over or are covered with small second-growth forests can be bought for $5 to $25 an acre, depending on the topography and location of the land and the nearness to town. The cost of clearing the land of the second-growth trees, stumps, and underbrush is estimated at $20 to $40 an acre.

SOILS.

The soils of the Marshfield area comprise three clearly defined groups, as determined by origin and the process of formation, namely, the residual soils of the hills and uplands, the reworked deposits occupying the Coastal Plain and the marine and river terraces, and the alluvial soils of the stream bottoms. In extent the soils of the uplands rank first. They are derived from the weathering of underlying rocks of sedimentary and to a less extent of igneous origin.

The geologic formation characterizing the upland portion of the area, lying north of the Coquille River in Coos County, from which the soils in this portion of the area are largely derived, belongs to the Eocene period. This formation is composed of thick strata of shale and sandstones frequently alternately stratified near the coast, while in the eastern part of the area the massive sandstone predominates, as is well seen along the greater part of the South Fork of the Coos River. The prevailing color of the shales is yellowish brown or occasionally white, while light-colored sandstones are most common. The shale is frequently deeply weathered and fissured, forming loose, disintegrated beds, and permitting the penetration of tree and plant roots to great depths and generally affecting the soil and subsoil of the overlying material as regards drainage. The Riverton clay loam is the principal soil type derived from this formation. In local areas it forms a shallow covering over shale or sandstone, but is usually of great depth, is free from gravel where typically developed, and possesses a uniformly silty or loamy texture.

The soils derived from the Myrtle formation of the Cretaceous period are confined to the southern part of the area in Coos County and the northwestern part of Curry County. The dark-gray sandstones and fine conglomerates and shales occurring in this section have imparted a darker color and slightly heavier texture to the soil ma-

terial than is typical of the soils derived from the Eocene rocks of the uplands farther north. The presence of angular chips and rock fragments in the soil and subsoil and the more rugged topographic features of the region, the comparatively thinly forested slopes in certain areas, and bare hills are distinguishing features of the Myrtle clay, the principal soil type derived from this formation.

Some relatively small areas of soils are derived from basaltic or igneous rocks of the Eocene period. The weathering of the more extensive outcrops has given rise to the Aiken clay. In a number of places the igneous material occurs in prominent ridges, chief among which are Sugarloaf and Blue Mountains. Smaller outcrops occur north of the Coos River, east of Myrtle Point and along the coast south of Bandon. These are closely associated with adjacent sedimentary formations and, except in the larger exposures, are of little importance in influencing the superficial soil types.

The soils of the Coastal Plain and older marine and river terraces and of stream bottoms are derived largely from Pleistocene deposits. The loose, unconsolidated sands of the Coastal Plain consist of white, brown, or black sand, usually free from gravel and characterized by great depth and a relatively loose, porous structure. The soil types, while consisting mainly of material of light sandy texture, have occasionally been subject to the deposition of finer sediments derived from the weathering of shales, sandstones, and conglomerates. These materials have been washed in by the upland streams and have produced areas of small extent which possess features of color and texture distinct from the soils originating directly from the reworking and deposition of the marine sands of the Coastal Plain. In general this has given a relatively close fine texture to the type mapped as Empire clay loam. Other soils occurring on the marine terraces and composed largely of sandy materials are mapped as Empire fine sand, Empire fine sandy loam, and Blacklock sandy loam, while those made up to a greater extent of silt and clay are the Blacklock loam and the Blacklock clay.

The alluvial soils of the bottom lands vary in texture from heavy, impervious clays to light sandy loams. They form a group of soils occurring along the Coos and Coquille Rivers and other streams and in the vicinity of New Lake, in the northwest part of Curry County. These soils constitute the Coquille series. They occur as flood plains along the rivers and sloughs in various parts of the area and have a wide range in their adaptation to crops. The greater part of the included area consists of soils having a silty or clayey texture. Upon the narrower and more elevated portions of the river plain in the upper Coquille and Coos River valleys the soils consist mainly of material of a sandy texture. Broad areas of silts and clays are found along the lower portions of the river plain.

Accumulations of Peat are found associated with present or former swamp conditions within the areas of alluvial soils along the streams. Some large areas of wind-blown sand occur bordering the coast, and this material is classed as Dunesand, to which the type mapped as Empire fine sand is related, the latter representing deposits of weathered and partially altered older wind-blown material.

The following table gives the names and areas of the several soil types shown in the accompanying map:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Riverton clay loam	225,792	36	Empire fine sand	5,248	0.8
Rough mountainous types (undifferentiated)	220,160	35.1	Blacklock clay	4,864	.8
Myrtle clay	44,608	7.1	Blacklock sandy loam	4,864	.8
Coquille silt loam	26,816	4.3	Coquille fine sandy loam	4,736	.7
Empire fine sandy loam	19,200	3.1	Blacklock loam	4,480	.7
Empire clay loam	18,112	2.9	Peat	3,648	.6
Dunesand	14,592	2.3	Coquille sandy loam	2,688	.4
Aiken clay	9,856	1.7	Tidal marsh	896	.1
Arago clay loam	8,320	1.3	Total	627,200	.....
Coquille silty clay loam	3,200	1.3			
Peaty subsurface phase	5,120				

RIVERTON CLAY LOAM.

The surface soil of the Riverton clay loam consists typically of 6 to 15 inches of a rather silty clay loam of light-brown to chocolate-brown color. This is subject to some variations in texture, which ranges from a light to a heavy clay loam, as well as in depth. On steep hill slopes the erosion of the lighter textured material occasionally exposes a soil of clayey texture, though this phase does not appear to be extensive or important. The variation in texture appears to depend mainly on the relative proportions of silt and fine sand. The larger part of the type has a comparatively light texture.

The subsoil is typically a reddish-brown or yellowish clay or somewhat silty clay extending to a depth of 3 feet or more. Below this the subsoil rests on strata of sandstone, or loose, partly disintegrated shale. Tree roots frequently penetrate for a considerable distance into the fissures in the shale, thus aiding in the process of weathering and affecting the subsoil drainage. The close texture of the subsoil gives it good moisture-retaining properties.

A close examination of the soil in its virgin state usually shows that the first 2 or 3 inches contain a larger proportion of coarse to medium textured sand, while below this the content of finer particles, silt and clay, increases, though the line of separation between the soil and subsoil is usually abrupt and is marked by a distinct change of color and

texture. The upper part of the soil contains a large proportion of fibrous roots and partially decayed organic matter, which produce a darker shade of color to a depth of 6 to 12 inches and give an apparent lighter texture than is revealed by mechanical analysis. When first cleared the soil cultivates easily and is quite friable, but it becomes compact and more difficult to handle after a few seasons of cultivation.

The Riverton clay loam covers the greater part of the uplands in Coos County within the limits of the survey. It is most extensively developed in the northern half of the area, where the more important parts of the type occur. The soil passes gradually into adjacent soil types occurring in the uplands, the line of separation being vague and difficult to determine. As this type is mainly confined to the hilly uplands, the surface topography is exceedingly rough and broken. The hill slopes are often steep, though the crests are usually well rounded or terraced. In the outlying areas along the east side and in the southern part of the survey the roughest areas are found.

The Riverton clay loam owes its origin to the weathering of the sandstones and shales of the Arago formation, which is recognized in the geology of the region as belonging to the Eocene period, and which has been locally subdivided into the Pulaski and Coaledo formations, which together cover almost the entire northern three-quarters of the area, the latter containing valuable deposits of coal. The soil material is of residual and colluvial origin, and forms a mantle of considerable depth over the greater part of the region. The dense forest growth effectively protects the soil from washing and gullying even on the steepest slopes. Practically the entire area is covered with original or second-growth timber. In the vicinity of Coos Bay and along the larger streams much of the virgin timber has been removed, and has been replaced by a thick and almost impenetrable growth of fir, spruce, alder, and other small trees. The virgin forests of fir, cedar, spruce, and hemlock are found mainly in private forest reserves.

A considerable proportion of the area occupied by this soil type is too rough to be well adapted to clearing and cultivation. Such areas should undoubtedly remain forested. A considerable part of the more level areas would appear to justify ultimately the clearing of the second-growth trees and brush and the utilization of such areas for agricultural purposes. As yet no large tracts have been cleared and brought under cultivation. It is largely held in homesteads of 160 acres or in larger tracts.

Upon the lighter phases of the Riverton clay loam truck crops have been found to yield well when planted in the spring and given proper cultivation. While only a few small areas of the soil have

been under cultivation for more than two or three years, experience has shown that the soil is well adapted to most of the crops produced on the bottom lands. Oats, wheat, red and white clover, vetch, and in certain places alfalfa have given good yields on this soil type. In favorable locations the type is well adapted to the production of bush fruits, apples, pears, plums, and other deciduous fruits. Recently a number of small orchards have been planted in the Coos River and Coquille River Valleys and in other places. The principal varieties of apples found in these sections are Gravenstein, Baldwin, Spitzenberg, and a few less common sorts. The Gravenstein, which is the leading variety for market, is of excellent quality. The Riverton clay loam is especially adapted to the production of loganberries, blackberries, and strawberries.

The use of stable manure and the growing of green-manure crops would be very useful in maintaining the productiveness of the soil. The early planting of most crops is also desirable in order to secure the largest possible growth before the beginning of the season of dry weather.

The Riverton clay loam is valued at $10 an acre and upward.

The following table gives the average results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Riverton clay loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21898, 21900.....	Soil.....	0.3	2.5	3.8	12.4	12.5	40.9	27.7
21899, 21901.....	Subsoil.....	.1	1.1	2.6	11.7	11.4	34.0	39.3

MYRTLE CLAY.

The Myrtle clay is typically a dark-gray or reddish-brown clay, with an average depth of 10 to 18 inches, resting on a subsoil of light-brown to bright-yellow clay, usually of rather close structure. The subsoil often contains a considerable quantity of small angular fragments of rock, principally shale, of a yellowish-brown or bluish color. The subsoil, at a depth of 3 to 6 feet or more, usually rests on beds of partially disintegrated shale or sandstone. The soil is somewhat variable in texture and often contains a small quantity of gravel of rounded or angular form. In certain localities the surface is strewn with large rounded bowlders, and on steep hillsides the outcropping of giant bowlders or what appear to be detached portions of the rocky substratum is a characteristic feature of the surface.

The Myrtle clay is almost wholly confined to the part of the survey lying to the south of the Coquille River. There are two main

bodies of the type. One of these occurs south of Myrtle Point, while the larger area is found in the uplands bordering the Coastal Plain in the southwestern part of the survey. The soil is confined to the hills and minor valleys of the uplands, and the topography ranges from steep hill slopes to undulating lands bordering the valleys.

This is a residual soil derived through weathering from the underlying rocks of the Myrtle formation of Cretaceous age. The rocks consist of a hard gray sandstone and a small proportion of light-colored interbedded shales and conglomerates. The formation has been crushed and is highly fissured.

The greater part of the type is forested. Between Eckley and Myrtle Point some open tracts occur which are known locally as "prairies." The raising of stock on these open prairies by the first settlers was probably the earliest agricultural industry in this section of the country. By far the greater part of the type which is suited to clearing is best adapted to grazing, while the rougher portions will undoubtedly remain in forest. Along the upper Coquille River and on the Sixes River and Floras Creek some small areas of the type are in cultivation. In sheltered locations oats, wheat, and barley yield fair crops. They are, however, usually cut for hay. The greater part of the type is included in private timber estates. Cleared areas suitable for pasture or cultivation are held at from $10 to $40 an acre.

Below are given the results of mechanical analyses of samples of the soil and subsoil of the Myrtle clay:

Mechanical analyses of Myrtle clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21918	Soil	2.8	4.1	1.8	4.0	10.5	38.6	38.0
21919	Subsoil	2.2	5.6	2.5	4.3	4.7	46.6	34.0

AIKEN CLAY.

The Aiken clay, to a depth of 6 to 15 inches, is a dark-brown or dark brick-red clay of moderately heavy texture. The upper 2 or 3 inches of soil contains appreciably more fine sand than the underlying material. This is due to the removal of the finer clay particles from the surface by rain wash. To a depth of 6 inches the soil is often of a dark color, owing to the presence of a large quantity of organic matter. The subsoil is typically a clay of bright Indian-red and brick-red color and extends to a depth of 3 feet or more. At varying depths the material rests on loose, disintegrated beds of basalt or sandstone. The surface of the type is usually strewn with small rounded bowlders or rock fragments of igneous character. The

term "adobe" has been applied to this soil, owing to the sticky, tenacious condition which it assumes in wet weather.

The Aiken clay occupies only a comparatively small area in the Coos Bay region. The largest and most typical area is found about 2 miles southeast of Coquille. Smaller bodies occur near the head of Kentuck and Willanch Sloughs, at the mouth of Daniels Creek, and in one or two other places. Generally the smaller bodies are variable in texture and in places a lighter soil material resembling the Riverton clay loam has been superimposed upon portions of the type, but owing to the frequency in the changes of texture and the comparatively small extent of such occurrences it was found impracticable to separate them from the remainder of the type on a map of the scale used.

The topography ranges from steep hill slopes to undulating or moderately sloping terraces near the base of the hills fronting the larger valleys. Very little of the type is cleared.

The material forming it has resulted from the weathering and decomposition of the basaltic or igneous rocks which are exposed in a few places in the region. Some larger areas of this formation are included in the type mapped as rough mountainous types (undifferentiated). The presence of a large proportion of iron salts in the products formed by the weathering of the basalt has imparted a deep red coloring in the subsoil.

None of this soil type is under cultivation at present, the only portions that are cleared occurring in the body southeast of Coquille along the east slope of the valley and a small area on Daniels Creek. The more level parts of the type, when cleared, should prove to be well adapted to the production of grain and forage crops. The rough areas should undoubtedly be allowed to remain timbered.

The following table gives the average results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Aiken clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21902, 21924.....	Soil.....	0.5	1.8	2.3	4.8	7.3	28.6	48.7
21903, 21925.....	Subsoil.....	.4	1.7	1.4	4.4	4.7	32.6	54.8

ROUGH MOUNTAINOUS TYPES (UNDIFFERENTIATED).

Some extensive areas occur within the limits of the survey which, because of their rough topography, are not suited to agricultural development. The general term Rough mountainous types (undifferentiated) has been applied to these areas. They are made up of materials forming the different upland soil types.

The Rough mountainous types (undifferentiated) occur as extensive areas in the eastern and southern parts of the survey. Outlying bodies include Blue Mountain and the adjacent hills, the Seven Devils, and other scarcely less rugged uplands. Over the greater part of the area the elevation ranges from 500 feet to over 2,000 feet. The topography of this region is exceedingly rough and broken. It is dissected by many narrow valleys, and the hill slopes are often steep and of irregular contour. The entire area is covered with a heavy forest growth, some extensive tracts of original forests being situated in this part of the survey. The best utilization of the mountainous areas appears to be for forestry.

ARAGO CLAY LOAM.

The Arago clay loam varies from a heavy silty clay loam to a light friable clay loam, sometimes containing an appreciable amount of fine sand. It has an average depth of about 15 inches and with the exception of small areas is usually free from gravel. The prevailing color is a light brown. It responds readily to cultural treatment and when in a favorable condition as regards moisture is friable and easily cultivated. The surface soil is underlain by a silty clay loam or clay loam of brown to light-brown color, which frequently rests upon sandstone or shale rock or upon old gravel beds. These beds are occasionally exposed at the surface.

This type occurs as a few inextensive bodies. They represent colluvial valley slopes or occur as remnants of former terraces in the upper Coquille River Valley and in the valley of Coos River or adjacent to Coos Bay. The terrace areas are locally known as second bottom or bench land, and are prominent features of the valley topography. They are old and at least some of them have been submerged in the waters of the sea or estuaries and altered by marine or estuarine deposits, most of which have been removed by subsequent stream erosion. The soil material has been subjected since emergence to more or less modification through addition of alluvial material and by colluvial wash from adjacent slopes.

The areas of Arago clay loam were originally heavily timbered. The greater part of the timber has been removed. Large areas partially cleared are found in the vicinity of Arago and Myrtle Point. Because of the immense size of some of the trees clearing is a slow and difficult process, and the larger stumps are left standing for many years or are burned off. After the land is cleared it is usually very productive.

With the exception of the small tracts found at Arago, Myrtle Point, and near Fairview scarcely any of this soil is under cultivation. When partly cleared it is usually devoted to pasture. It is, however,

one of the most promising soils of the area surveyed for the production of fruit. Its topographic position would appear to render the areas of the Arago clay loam less subject to late spring frosts than are the bottom lands. Small fruits, such as raspberries, loganberries, and blackberries, produce crops of very fine quality, though the yields are somewhat less than have been obtained on the lighter river-bottom soils. The largest returns have been secured from the cultivation of small tracts to strawberries. At Myrtle Point a grower has practiced irrigation with this crop with very good results, the vines continuing to bear throughout the summer and until late in the fall. Red clover and timothy have been grown to a small extent for hay. The quality of these crops is exceptionally fine, and as a rule two crops can be cut during the spring and early summer. Oats, wheat, kale, and potatoes and other vegetables do well when given proper cultivation. As the soil can be planted early in the spring, it should be well adapted to the production of early vegetables and field crops requiring a long growing season. As with the case of the residual soils of the uplands, the successful growing of most crops depends on the thoroughness of the cultural methods and the attention given to maintaining the productiveness of the soil by crop rotation and the use of stable or green manure.

The cultivated areas of the Arago clay loam are valued at $50 to $70 an acre, according to location and the value of the improvements.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Arago clay loam:

Mechanical analyses of Arago clay loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21888	Soil	0.0	0.5	0.2	3.3	15.9	53.1	26.9
21889	Subsoil	.0	.3	.2	4.0	15.0	54.6	25.9

EMPIRE FINE SAND.

The Empire fine sand consists of light-gray, light-brown, or reddish-brown sand of medium to fine texture. It is usually of great depth. The surface soil to a depth of 6 to 10 inches is discolored by the remains of vegetation, and appears slightly heavier than the underlying material. It contains many small nodules or pellets resembling fine gravel, which have been formed by the cementing together of the sand grains. When exposed in deep cuts, the vertical surface assumes a characteristic columnar structure, unlike the more recent, typical Dunesand of the coast. The surface soil assumes a moderately compact condition when wet, though, owing to the lightness of

texture, cleared areas are subject to considerable damage by wind erosion.

The principal body of this type forms a fringe along the south shore of Coos Bay, extending from Pony Slough to a point about three-quarters of a mile west of Yokam Point, and for a short distance up South and Pony Sloughs. A separate body of the soil is found on the north side of the Coquille River, near its mouth. The topography is undulating to steep and hilly. The surface is often marked by ridges or hills 15 to 30 feet or more in height.

The Empire fine sand owes its origin to an earlier dune formation near the entrance to Coos Bay. With protection from subsequent erosion, weathering has altered the texture and structure of the material. It bears a close resemblance to the recent Dunesand of the coast in the surface topography and in the character of the sand granules. The age of the deposit is shown by its forested condition. On the bay side the material has been subject to considerable erosion.

The vegetation consists of a dense growth of cedar, fir, spruce, and an undergrowth of other plant species. Parts of the type are covered with the blackened remains of trees and brush which have been burned over by forest fires.

The greater part of the Empire fine sand is too rough for cultivation and it is better adapted to forestry than for farming.

The following table gives the results of a mechanical analysis of a sample of the soil of this type:

Mechanical analysis of Empire fine sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21917.....	Soil.....	0.0	0.0	3.3	94.2	0.6	0.5	1.5

EMPIRE FINE SANDY LOAM.

The soil of the Empire fine sandy loam is a brown or reddish-brown fine sandy loam containing a considerable amount of medium to coarse sand and having a depth of 15 to 18 inches. The subsoil is a loose fine sand or light fine sandy loam, which is usually distinguished by alternate strata of brown and gray color to a depth of 36 inches or more. In certain places the surface of the type has received a shallow deposit of loamy material, which has been washed in from higher elevations. In the first 6 to 8 inches of the soil the organic matter has produced a dark discoloration and modified the apparent texture, the material seeming heavier than it really is. Scattered through the soil are many small nodules, resembling fine gravel, which have been formed by the cementing together of the

sand grains by iron salts. This cementing process has in a few instances resulted in the formation of a thin hardpan at a depth of about 9 inches. The area thus affected, however, is of small extent, and made up of small tracts within the larger body of the type. Such tracts are usually easily distinguished by the scrubby appearance of the vegetation.

The Empire fine sandy loam is well developed on the Coastal Plain north and for some distance south of the Coquille River. Some small bodies of the type are found also in the vicinity of Port Orford and Langlois. The surface of the type is comparatively flat or slightly undulating. Low sand ridges have been formed in many places by the action of the wind or water and the surface is cut by shallow stream courses, which find their outlet in the larger streams crossing the plain. The soil material represents old beach sand which was deposited as a marine terrace forming the narrow plain along the seacoast north of Port Orford. The texture has been somewhat modified by colluvial and alluvial material derived from the uplands. In many places a finer texture of the surface material has resulted from the deposition of silt and fine sand.

Only a few small areas of Empire fine sandy loam have been cleared of the forest growth and underbrush. The native vegetation consists of a light growth of fir, cedar, spruce, alder, with madroña and other shrubs. Certain parts of the type were originally covered with valuable forests of cedar, which was extensively used as shipbuilding material. At present only a small amount of the original forest remains.

Probably less than a half section of this soil type in all has been cleared and planted to crops. The Empire fine sandy loam is better adapted to crops requiring a large amount of care and cultivation than to general field crops. The production of strawberries, vegetables, and bush fruits should be successful on areas of the type that are not too loose and porous in the subsoil. The uncleared portions of the type are held at $5 to $20 an acre.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Empire fine sandy loam:

Mechanical analyses of Empire fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21886	Soil	0.4	2.9	8.6	54.5	5.7	13.3	15.1
21887	Subsoil	.3	1.3	7.3	74.3	3.9	5.2	7.8

EMPIRE CLAY LOAM.

The Empire clay loam consists of a light-brown clay loam, free from gravel and extending to the depth of about 15 inches, although

the depth is subject to considerable variation and may be 3 or more feet. The material is usually of friable structure and capable of being maintained in a favorable condition of tilth if handled when in a proper condition as regards moisture. It is underlain by a sandy subsoil of light-gray or reddish-gray to light-brown color, in which small pellets caused by cementing of the soil particles by iron salts are of common occurrence.

This soil type occurs in several scattered bodies in the Coastal Plain from Bandon southward to Port Orford. The topography is flat to undulating, the areas representing marine terraces. These reach an elevation of some 225 feet above sea level at Cape Blanco and are traversed by occasional broad, shallow valleys cut by the larger streams. There is an abrupt rise of 20 or 30 feet from the valleys to the level of the terrace.

Like the other members of the Empire series, the Empire clay loam owes its formation to the transportation, deposition, and modification of sedimentary material by waves and shore currents. The materials come originally from the rocks of the adjacent mountains of the Coast Range, whence they have been eroded and transported to the sea by streams. In the case of this type, however, the soil material is heavier and finer than the most of the Coastal Plain deposits, and the soil has been subject to greater modification through addition and admixture of material washed from adjacent slopes and deposited from flood waters of foothill streams than the other types of the Empire series.

It is in its original condition heavily forested, and but small and relatively unimportant areas have as yet been cleared and cultivated. Favorably situated bodies will probably be found suited to the production of apples, berries, small fruits, and hay crops.

The average results of mechanical analyses of typical samples of the type are given in the following table:

Mechanical analyses of Empire clay loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21892, 21894.....	Soil.....	0.9	2.6	4.6	8.4	11.2	42.3	29.9
21893, 21895.....	Subsoil.....	1.1	3.4	5.4	10.5	12.4	34.7	32.5

DUNESAND.

The Dunesand consists of medium to fine textured buff or light-gray sand. It varies from less than 2 feet in depth upon the higher lands along the immediate coast, where it forms a shallow surface covering, to many feet in depth in the larger areas on the lowlands.

The material is essentially pure sand, free from the finer particles of silt and clay and of uniform texture. Owing to the continual movement of the surface soil it is usually bare of vegetation, and the white, undulating surface presents a striking contrast to the thickly wooded slopes which border the areas on the landward side.

The Dunesand occupies a narrow belt along the seacoast for practically the entire length of the area south of Twomile Creek. North of Bandon, and between Davidson Lake and New Lake, it reaches a maximum width of one-half to three-fourths mile, though along the greater part of the coast south of the Coquille River it forms a thin strip along the beach or capping the headlands or bluffs facing the ocean.

Northward from Coos Bay an extensive area of Dunesand incloses the bay on the west side, and between North Slough and the ocean attains a width of 2 miles. The surface of the type here is thrown into low mounds or prominent hills and ridges which extend in a direction nearly parallel with the coast. During severe windstorms the sand drifts and the form and even the position of the ridges undergo more or less change. The creep of the sand hills inland is plainly seen along the west side of North Slough and in other places where large trees have been partially buried, and, in exceptional cases, wooded areas have been completely covered and the trees killed outright. The larger part of the type in this section is held in homestead tracts of 160 acres. Several small deposits of peat occur here in the beds of old lakes, and in some instances attempts have been made to utilize such areas, though as yet but little success has been achieved in cropping the sandy soil.

The preventing of the sand from drifting has been the object of some experiments with sand-binding grasses and sedges which have been planted in a few places on the bay side of the sand spit. The experience here, as in other parts of the country, has shown the difficulty in securing a protective covering of vegetation upon areas where the sand is in an active state of motion. Thus far but little success has been met with the plants used. Where local protection from drift is desirable various mechanical means have proved more or less effective in other regions of somewhat similar conditions.

The question of controlling the movement of the sand dunes and the protection of areas from the drifting of the sand is fully discussed in a bulletin[a] issued by the department.

BLACKLOCK SANDY LOAM.

The soil of the Blacklock sandy loam consists of 6 to 12 inches of dark ashen gray or black sandy loam of medium to fine texture.

[a] Bul. 65, Reclamation of Cape Cod Sand Dunes, Bureau of Plant Industry, United States Department of Agriculture.

The dark color of the soil is associated with low-lying areas of the type which are usually of small extent. The subsoil is a dark reddish gray to light reddish gray sand extending to a depth of 3 feet or more. A stratum of hardpan from 2 to 4 inches thick is generally present between the soil and the subsoil. The texture of the material forming the hardpan is similar to the subsoil immediately underlying it, the grains being firmly cemented together by ferruginous salts. The hardpan layer is sufficiently impervious to check the normal root development of deep-rooting plants. This feature, combined with the loose, incoherent texture and lack of organic matter in the soil, renders the type unproductive and of little agricultural importance.

The Blacklock sandy loam is of comparatively small extent. It is confined to the eastern edge of the Coastal Plain, where it occurs as a long, narrow body south of Prosper and a few separate bodies near Fourmile Creek and Denmark. The surface is flat or slightly rolling. Small sinks or depressions occur in places and are apparent from the dark color of the soil and faulty drainage. Otherwise the soil is moderately well drained. The area occupied by this soil type is usually distinguished by the thin, scrubby character of the native vegetation. The principal growth consists of dwarfed fir, spruce, cedar, madroña, wild huckleberries, and smaller bushes.

Few attempts have been made to utilize this soil for the production of crops. It is generally regarded as unproductive, and under present conditions does not justify the expense of clearing and cultivation. The natural vegetation furnishes a small amount of pasturage for cattle and sheep, and in its present state it is best suited to grazing.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Blacklock sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21896	Soil	0.0	7.5	37.2	23.3	6.1	18.4	7.3
21897	Subsoil	.1	9.9	46.5	21.4	2.8	8.4	10.7

BLACKLOCK LOAM.

The soil of the Blacklock loam, to a depth of 14 to 24 inches, varies from a light loam containing a very noticeable content of fine sand to a rather heavy, smooth-textured loam. The color of the soil ranges from gray to brown or black. The subsoil consists of a reddish or brownish gray fine sand. Sometimes a light yellowish

brown to black clay loam or clay underlies the soil to a depth of 3 feet or more. When the type adjoins soils of lighter texture the subsoil often contains a considerable proportion of coarse or medium sand or consists of strata of sand and clay. The variation in the texture of the subsoil is characteristic of the small area of the type occurring near Bandon. The surface soil is generally of light, friable texture, but has a tendency to become very compact when wet.

The Blacklock loam is an inextensive soil type occurring as two separate areas on the Coastal Plain south of Bandon. The larger body is found on the north side of the Sixes River. The topography is flat or marked by the occurrence of low mounds or ridges, and in the lower bodies, narrow basinlike depressions occur in which the drainage is obstructed. The higher parts of the soil type are not noticeably deficient in drainage under ordinary conditions. The type owes its origin principally to the sediments deposited by the upland streams during the period of submergence of the plain in the waters of the sea or bay. The wash from higher soil bodies has in places modified the texture of the soil and subsoil. Nearly the entire area of the type is covered with a small, scrubby growth of fir, cedar, alder, and bushes, though in the large body north of Port Orford some valuable timber is found.

Areas of the Blacklock loam are generally regarded as of low value for agriculture and very little of the type has been cleared. The principal use made of the cut-over areas is in the pasturing of cattle and sheep. The small body of this soil near Bandon is probably better for clearing and development than other parts of the type, but as there is a wide extent of more productive soils near by, this soil type hardly justifies immediate clearing and the expense of fitting it for cultivation.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Blacklock loam:

Mechanical analyses of Blacklock loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21922	Soil	0.2	2.1	8.4	29.9	9.0	31.6	18.7
21923	Subsoil	.0	.5	1.6	79.0	3.2	7.5	8.2

BLACKLOCK CLAY.

The Blacklock clay is a dark ashen gray to bluish-gray or grayish-brown clay extending to a depth of 3 feet or more. The upper part of the section usually contains a large amount of well decomposed organic matter, which under cultivation gives the impression

of lighter texture, but when wet the soil assumes a heavy, plastic condition. The dense impervious structure of the subsoil prevents the passage of surface water into the lower strata and produces a boggy condition in wet weather upon areas which are subject to overflow.

The phase of the type occurring west of Langlois is occasionally underlain by sand. Where this material occurs within a range of 2 feet or less, it causes the soil to dry out rapidly in summer. In general, however, the type possesses good moisture retaining properties and is not seriously affected by droughts.

The largest areas of the Blacklock clay are found in the northwest part of Curry County, in the Coastal Plain region, while other areas occur along Twomile Creek and south of Fourmile Creek in the southwest part of Coos County. The type consists largely of materials washed from the adjacent higher lying soil types and left as a superficial deposit over the Coastal Plains. The large body which occurs west and north of Langlois was apparently deposited in the waters of salt-water or brackish lagoons, New Lake and Crooks Lake apparently being the remnants of much larger bodies of water which once covered the lowlands in this section.

Of the total area of this soil type probably less than half is cleared and utilized in the production of crops. The larger proportion of it is subject to overflow during the rainy season. Because of its low position and flat topography the soil is greatly in need of artificial drainage. The principal crops grown at present are oats, corn for fodder, clover, vetch, cowpeas, and occasionally potatoes. It supports several prosperous dairy farms near Langlois. In texture and drainage conditions as well as in the crops adapted to it, the soil closely resembles the Coquille silty clay loam.

Below are given the results of a mechanical analysis of a sample of the soil of the Blacklock clay:

Mechanical analysis of Blacklock clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21916	Soil	0.3	1.8	0.9	1.8	5.3	47.4	42.4

COQUILLE SANDY LOAM.

The Coquille sandy loam consists of 15 inches to 3 feet or more of loose, porous sandy loam of brown to light-brown or reddish-brown color. The subsoil is quite variable in texture, owing to the varying conditions under which the material has been laid down. It varies from nearly pure sand, of a medium to coarse texture, to heavy silt loam. At a depth of 3 feet it is usually underlain by a loose sandy

loam or sand, though the heavier phase of the subsoil is more frequently underlain by material of silty or clayey texture. A shallow surface deposit, 3 to 6 inches, of river sand is occasionally found.

This soil type is of comparatively small extent, being mainly confined to the river bottom lands along the upper Coquille and Coos Rivers. The principal areas occur along the South Fork of the Coos River, where the river plain is elevated from 10 to 15 feet above the level of high tide. Because of its elevated position and light, porous texture it is naturally well drained, and is adapted to early planting in the spring. The open structure of the soil, however, causes it to lose moisture rapidly during the dry period of the summer, and unless given proper cultivation, most crops are more or less affected by long droughts. The soil material is of alluvial origin. It represents the coarser grades of sediment deposited by the streams during floods, and with each fresh inundation its area is being extended. The successful growth of intertilled crops upon this soil type requires frequent cultivation throughout the growing period to conserve the soil moisture and increase the capillary movement of moisture from the lower depths of the soil. It is one of the most productive potato soils of the area, the yields varying from 100 to 250 bushels to the acre. Other crops which are considered to be well adapted to the type are strawberries, garden vegetables, corn, kale, vetch, and cowpeas. Some parts of the type are suitable for irrigation, though it is doubtful whether this practice can be recommended in view of the excellent results which may be secured without irrigation where intensive cultural methods are employed.

In general the areas of this type are not well adapted to tree fruits. Where small orchards have been planted the trees have generally a tendency to produce an excessive amount of woody growth. Bush fruits, however, have been found to be very well adapted to the soil, producing somewhat greater yields than are secured upon the drier soils of the uplands.

The larger part of this soil type in the upper Coos River Valley is under intensive cultivation, producing considerable quantities of vegetables and small fruit for the markets of Marshfield and North Bend.

COQUILLE FINE SANDY LOAM.

The Coquille fine sandy loam consists of 12 inches or more of a friable brown or buff fine sandy loam. The subsoil is of variable texture, ranging from a fine to coarse sandy loam, and at a depth of 3 feet it usually grades into a loose sandy loam or sand. In a few places the type occurs as a surface deposit over the adjacent soils of heavier texture, and in such cases it has a silt loam or heavier subsoil. The soil and subsoil are usually of sufficiently close texture

to maintain favorable moisture conditions for crop growth during the dry summer months when given proper cultivation. The type is easily worked, is adapted to early spring planting, and responds readily to intensive methods of cultivation, which largely determines the crops which are best suited to the type.

The occurrence of the Coquille fine sandy loam is limited to a number of small bodies found principally along the upper parts of the Coquille and Coos Rivers. It is usually developed upon the higher parts of the river plain adjacent to the stream, passing gradually into the soils of heavier texture occupying the lower portion of the bottom lands. It has sufficient surface slope to give good drainage. The material is alluvial in origin, having been transported from distant sources and deposited by the streams in earlier times. It is subject to overflow from the river and consequently is undergoing more or less erosion. The addition of new material by the successive floods produces local variations in the extent and position of the type. Some small areas are found in the northern part of the survey along Larson and Kentuck Sloughs.

The larger areas are cleared and under cultivation. Corn, potatoes, and truck crops are principally grown, though cowpeas, vetch, and other forage crops are produced to a less extent. Small orchards of apples, pears, and plums are occasionally found, and where properly cared for have been moderately productive. As a general rule, however, the soil is better adapted to the various bush fruits than to tree fruits. It is noted for the excellent quality and yields of loganberries, blackberries, and raspberries.

Under systematic cultivation the Coquille fine sandy loam is well adapted to a wide range of vegetables, kale, corn, and other cultivated and forage crops suited to the climate of the region. In a few cases alfalfa has been grown with some success.

The areas of this soil type are held at $75 to $200 an acre, depending on location and the character of the improvements.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Coquille fine sandy loam:

Mechanical analyses of Coquille fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21906	Soil	0.0	0.3	0.8	16.8	35.4	34.0	12.9
21907	Subsoil	.0	.4	3.1	33.1	30.6	21.6	11.1

COQUILLE SILT LOAM.

The Coquille silt loam consists of from 15 to 30 inches of grayish-brown or light-brown silt loam of moderately heavy texture. Below

this, and to a depth of 36 inches or more, the subsoil is a heavy silt loam or clay of blue or gray color. There is frequently little variation in the texture of the material to depths of several feet. The soil and subsoil usually contain a considerable amount of fine mica which imparts a smooth texture to the material and the upper stratum of the soil possesses a mottled, discolored appearance, the result of poor drainage and the accumulation of organic matter. A phase of this soil type occurs along the Sixes and Elk Rivers, in the southwestern part of the area. This phase is of darker color and slightly lighter texture for the first foot or more of the soil than is the typical soil. When wet the soil is very sticky and resists cultivation, but when in proper condition to be handled it breaks up into a friable state and is easily worked.

This soil type is confined to the bottom lands along the Coquille, Coos, Sixes, and Elk Rivers and minor streams of the area, and the inlets leading into Coos Bay. In the lower parts of the Coos and Coquille River Valleys and along the principal sloughs the surface is less than 2 feet above the level of ordinary high tides. In general the drainage is defective, and a large part of the area upon the lower elevations remains in a water-logged or semiswampy condition during several months of the year. The necessity of providing artificial drainage for areas under cultivation is generally recognized, and within the last few years considerable improvement in this respect has been made. In most cases the surface drainage could be much improved at slight expense by the construction of open ditches and properly built tide gates. As this is one of the most extensive and highly productive soils of the river bottoms, it is probable that more attention will be given to improving drainage conditions as the demand for these lands increases. Some large areas of this soil type are held at a high valuation, though entirely unproductive under present conditions.

The Coquille silt loam is an alluvial formation originating from the weathering of sandstones, shales, and conglomerate rocks of the outer foothills and mountains of the Coast Range and deposited as stream sediments in the lower valleys. Well borings in various places have indicated that this alluvial material is of great depth, the deposits having completely filled the lower portions of many of the larger valleys, forming comparatively broad flood plains. The native vegetation of the unreclaimed portions of the type consists of a rank growth of juncus, marsh grass, rushes, and tule, and in places of a tangled forest growth of fir, myrtle, and willows.

Overflowed areas around Coos Bay are sometimes impregnated with salts deposited by the sea water, and these areas are covered by a thick mat of salt grass. With protection from overflow and with one or two seasons of cultivation the salts rapidly leach into the underdrainage, and are rarely troublesome to crops.

A considerable proportion of this type is under cultivation at the present time and in other places it is partially reclaimed and devoted to pasture.

When well drained the Coquille silt loam is regarded as one of the most productive soils of the river bottoms. The principal crops are potatoes, root crops, vegetables, vetch, hay, and grain. Potatoes yield from 100 to 300 bushels to the acre, while timothy and red clover yield from 2 to 4 tons to the acre in two cuttings. Near the coast the grain is usually cut for hay. Farther inland, where greater protection is secured from the coast winds, oats and wheat produce high average yields of grain. Under favorable conditions oats produce from 40 to 80 bushels per acre, though larger yields have occasionally been reported. The soil is well adapted to corn, but because of the cool nights during the growing season and the necessity for late planting upon this soil the crop frequently fails to mature. In Curry County along the Sixes and Elk Rivers the type is largely covered with timber and only a small percentage of the area in this section is cultivated.

In the line of improvement should be noted the necessity of better drainage and closer attention to the matter of crop adaptation. Alsike clover and rye grass would seem to be adapted to planting upon areas which are too wet for ordinary cultivated crops. Potatoes should be planted only on the better drained portions to insure satisfactory quality combined with larger yields. As a rule this soil should be avoided for tree fruits. This fact is sufficiently indicated by the condition of many of the small orchards which were set out some years ago, and which have remained stunted and unproductive.

The Coquille silt loam is one of the best general-purpose soils of the area, and supports some of the most profitable dairy farms in Coos County. The introduction upon this soil of hardy varieties of corn and grain crops especially suited to local conditions of climate would insure larger yields of these crops and lessen the number of crop failures. The cost of this soil type varies from $60 an acre for unreclaimed portions to $200 an acre for lands under cultivation and within easy reach of the towns.

Below are given the results of mechanical analyses of samples of the soil and subsoil of the Coquille silt loam:

Mechanical analyses of Coquille silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21912	Soil	0.0	0.1	0.2	1.0	23.0	57.9	18.1
21913	Subsoil	.0	.9	1.4	1.5	.9	57.7	37.4

COQUILLE SILTY CLAY LOAM.

The Coquille silty clay loam consists of a silty clay loam of bluish-gray to drab or grayish-brown color, extending to a depth of from 12 to 24 inches, the average depth being about 18 inches. It is of smooth and somewhat micaceous character, of close, compact structure, becomes very adhesive when wet, is readily puddled, and checks upon the surface upon drying. Under cultivation and when in a favorable condition as regards moisture content it is normally of friable character, owing to the ameliorating effect of the usual high content of organic matter in varying stages of decomposition.

It is underlain by a bluish-gray or light-brown to drab silty clay loam of close, impervious structure. Over small areas the subsoil sometimes approaches a sandy clay in texture. The transition from soil to subsoil is usually abrupt, but the greater proportion of the area covered by this type is marked by the occurrence of a thin stratum of peat interbedded between the soil and the subsoil. The soil areas of this character are indicated upon the map by use of a symbol, and are referred to as the peaty subsurface phase of the type.

The Coquille silty clay loam is confined to bottom lands of the Coquille Valley and to the tributaries of the lower Coquille. It occurs as long, narrow, and inextensive areas to bodies of considerable extent throughout the course of the valley below Myrtle Point. It frequently occupies slight depressions of the river flood plain, and is occasionally subject to overflow during the rainy season or in the lower valley by submergence during high tides, where protection by levees is required. Owing to low position and flat surface, drainage is in general deficient, and the more extensive areas remain in a swampy or waterlogged condition during the greater part of the year. The state of drainage is often the chief factor in determining the value of the soil for farming. In its native condition it usually supports a dense growth of willow, tule, and other rushes.

The Coquille silty clay loam material consists of the finer sediments laid down by the Coquille River, as alluvial and tidal estuary deposits. Modification of the material through the occurrence of swampy conditions has given rise to the deposits of peat occurring in the peaty subsurface phase of the type.

A considerable proportion of the soil has been cleared and is devoted mainly to pasture or hay. Some inextensive areas are used in the production of wheat, oats, corn, potatoes, and forage crops. Upon many of the dairy farms of the valley it provides excellent summer pasturage. With more attention to crop adaptation and drainage the yields could be greatly increased.

Owing to the close texture of the subsoil the subsurface drainage is slow, and water remains upon the surface unless discharged through

natural or artificial channels. In general, the areas can not be planted until late spring under existing conditions of drainage. In its present state the soil is not well adapted to the production of tilled crops requiring a moderately long growing season. The larger areas which have been cleared are well adapted to the production of hay and forage crops, including timothy, alsike clover, vetch, kale, and grasses suitable for pasture.

The poorly drained, peaty, subsurface phase of this type is in its present condition best suited to pasture or to the production of hay. Potatoes are grown to a small extent upon this phase, but the quality of the tubers is usually poor. When cleared of brush and reclaimed by drainage, however, this phase is one of the most productive soils of the region. In a few instances attempts have recently been made to improve drainage conditions of the Coquille silty clay loam by the construction of deep ditches leading into natural drainage ways, and in the vicinity of Coquille several drainage projects are now under way which have in view the reclamation of extensive areas covered by the peaty subsurface phase.

The soil is naturally one of the most productive of the Coquille series and can be efficiently drained with a comparatively small outlay. Prices of the Coquille silty clay loam range from $60 an acre for the overflowed and unreclaimed land to $150 or $200 an acre for reclaimed and improved tracts.

The following table gives the average results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Coquille silty clay loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21910, 21914	Soil	0.0	0.4	0.4	1.4	11.2	60.8	25.8
21911, 21915	Subsoil	.1	.3	.4	.9	2.9	58.8	36.3

PEAT.

The areas mapped as Peat include numerous small areas occurring along streams, lagoons, and in old lake beds. Several small areas are found west of North Slough in the Dunesand area, on the Coastal Plain north of Prosper, at Crooks and Floras Lakes, and in a few other places. The only extensive body occurs along the north side of the Coquille River, extending to the upper end of Beaver Slough and occupying an area of about 4 square miles.

In many of these smaller areas the material contains a varying proportion of mineral sediment mixed with the true peat. The larger area lying west of Coquille consists of true peat, being quite

uniform in texture and composition to a depth ranging from 12 inches to 3 feet or slightly more. The material here is composed of partially decomposed vegetable matter, forming a dense fibrous mass of fine roots and plant remains of a dark-brown color. A certain amount of mineral matter or river sediment is incorporated with the peat. The structure of the material is close and compact and usually the deeper portions are more fully decomposed, black in color, and resemble muck. The Peat is underlain by a heavy, silty clay similar to the subsoil of the Coquille silty clay loam and adjacent soil types. In the large area of the type near the mouth of Beaver Slough the depth is greatest along the outer edge of the area near the border of the river plain. The depth of the material decreases near the channel of the river where the bottom land gradually rises to form a flat, slightly elevated ridge along the stream.

In the small areas west of North Slough the Peat is usually not homogeneous, but contains pockets of sand, and in many cases the surface is covered to a shallow depth with wind-blown sand. In this locality the soil is usually shallow and rests on a substratum of sand of a coarse or medium texture. There is little similarity in texture between the small bodies of the type and the larger area described above, and many of these, because of irregularities of texture, are unimportant as peat deposits. There occur on North Slough and in other parts of the stream bottomlands areas of Peat which were too small to be shown upon the map used. Such areas are always associated with obstructed drainage and semiswampy conditions.

The body of Peat west of Coquille is partially reclaimed and cleared. The characteristic plants which originally formed a dense mass over the entire bottomlands in this section consist of willow, tule, and rushes. The willows form a dense growth which is difficult to clear. Where the larger vegetation has been removed the rapid growth of juncus, rushes, and swamp grasses upon areas which are not properly drained is somewhat troublesome. The drainage of the type in the Coquille section will be effected by a system of levees and canals, which were partly constructed in the summer of 1909. As with other parts of the bottomland along the lower Coquille River, the area of this type is subject to overflow during the winter months.

When fully reclaimed and cleared the Peat should prove to be very productive for hay and grain crops. In other parts of the coast region soils of this character have been found to be very well adapted to the production of vegetables, including onions, celery, asparagus, beans, lettuce, and other tilled crops.

The culture of cranberries has attracted attention to the areas of Peat in the vicinity of North Slough. Several cranberry bogs are in bearing at present and other small tracts are being prepared and planted to this crop. Only a small proportion of the type in this

section, however, offers the most favorable conditions for the growing of this crop, because of the great variation in the texture and other conditions.

Near Coquille cleared Peat land in suitable condition for cultivation is valued at $150 or more an acre.

TIDAL MARSH.

Tidal marsh consists of an admixture of heavy silty clay loams and clays generally of close and more or less impervious structure and usually of bluish-gray to gray or dark drab color. The lower portion of the soil section is frequently mottled with iron stains, and considerable organic matter, consisting of more or less decayed vegetable remains, usually occurs through the soil section.

Tidal marsh is mainly confined to the area subject to tidal overflow from Coos Bay. It has been formed from the fine, silty, and clay sediments carried by the Coos River and other streams and deposited as mud flats or alluvial fans around their mouths. It is cut by meandering sloughs and stream channels, and is entirely bare of vegetation or supports a growth of tules, rushes, salt grasses, and other varieties of saline plants. It is more or less completely submerged at high tide, and is maintained in a nearly continuous state of saturation with brackish water.

Owing to its low-lying position, lack of drainage, and high content of salt it is of no present agricultural importance. It is capable of reclamation only by the installation of a costly system of dikes, levees, drainage channels, and pumps to lift the water over the levees.

SUMMARY.

The Marshfield area is situated in the southwestern part of Oregon and occupies a stretch of country lying between the lower foothills of the Coast Range and the Pacific Ocean. The total area is 627,200 acres, or 980 square miles.

The upland section of the area is characterized by an unusually rough and broken topography and the occurrence of many small valleys which form part of the drainage system of the Coos and Coquille Rivers. The northern third of the area is crossed by the Coos River and the wide depression formed by Coos Bay with the various sloughs and inlets tributary to the bay. The Coquille River crosses the central part and with its tributaries forms the largest drainage system of the area. The rougher and more elevated uplands occur in the eastern and southern sections. A well-defined Coastal Plain occurs as a narrow belt of low elevation extending along the coast from the southern end of the area nearly to Coos Bay. The topography of the plain varies from undulating to flat. It is crossed

by the streams draining the western and southern parts of the area, the most important being the Sixes and Elk Rivers. These streams and the Coos and Coquille Rivers have formed comparatively broad flood plains which, when uncleared, are covered with a dense growth of willow, underbrush, tules, rushes, and other semiaquatic plants. The upland portion is covered with original or second-growth forests of fir, spruce, cedar, hemlock, alder, maple, and other trees.

Lumbering is the principal industry and a large proportion of the population is engaged in some phase of this industry.

Agricultural development has been largely confined to the lowlands along the Coos and Coquille Rivers and other streams. Some extensive areas of the river plains are cleared and under cultivation. Dairying is the principal type of farming. The manufacture of butter, cheese, and condensed milk are important industries. Cooperative or independent creameries are located at Marshfield, Coquille, Myrtle Point, and other places. Much of the milk produced is manufactured into butter in private creameries and a large quantity is handled by cheese factories.

A large proportion of the cultivated area of the lowlands is devoted to forage and hay crops to feed dairy stock. General farm crops, including root crops, potatoes and other vegetables, corn, and other grain crops are grown principally for home consumption.

There is an increasing interest in fruit growing. Certain soils of the area are especially adapted to the culture of bush fruits and apples. At the present time the Gravenstein apple is the principal variety shipped to outside markets. The largest areas of soils adapted to apples occur in the lower parts of the hills and upon the natural terraces which occur mainly in the Coquille River and tributary valleys. The lowlands are frequently too poorly drained to be adapted to orchards.

The agricultural development of the area has been retarded by the lack of transportation facilities and connection by railroad with other parts of the State. A considerable area of the bottom lands remains to be reclaimed by drainage. When this is provided many of the soils will undoubtedly prove to be highly productive. Farm lands in the river sections rank in productiveness with those in the best farming sections of the State and are valued at $150 to $200 an acre. Uncleared land in the hill sections which is suitable for farming is held at $5 to $25 an acre, depending on the location with respect to the towns.

The climate of the region is mild and healthful and is very favorable for the growing of the crops mentioned as well as to many not now produced.

NRCS Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

U S DEPT OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF

SOIL MAP

OREGON
MARSHFIELD SHEET

SOIL PROFILE
(3 feet deep)

- Coquille sandy loam: S / Sl / Sil
- Coquille fine sandy loam: Fsl / Sl
- Coquille silt loam: Sil / Sic
- Coquille silty clay loam: Sicl / Sic
- Peaty subsurface phase: Sicl / P / Sic
- Empire fine sand: Fs
- Empire fine sandy loam: Fsl / Fs / Fsl
- Empire clay loam: Cl / Fs
- Blacklock sandy loam: Sl / Hp / S
- Blacklock loam: L / Fs / Cl
- Blacklock clay: C
- Arago clay loam: Cl
- Aiken clay: C / C
- Myrtle clay: C / C
- Riverton clay loam: Cl / C

LEGEND
S Sand
Sl Sandy loam
Sil Silt loam
Fsl Fine sandy loam
Sic Silty clay
Sicl Silty clay loam
P Peat
Fs Fine sand
Cl Clay loam
Hp Hardpan
L Loam
C Clay

LEGEND

- Coquille sandy loam — Cs
- Coquille fine sandy loam — Cf
- Coquille silt loam — Csl
- Coquille silty clay loam — Ccl
- Peaty subsurface phase — Ccl
- Empire fine sand — Ef
- Empire fine sandy loam — Es
- Empire clay loam — Ec
- Blacklock sandy loam — Bs
- Blacklock loam — Bl
- Blacklock clay — Bc
- Arago clay loam — Al
- Aiken clay — Ac
- Myrtle clay — Mc
- Riverton clay loam — Rc
- Tidal Marsh — Tm
- Dunesand — D
- Peat — P
- Rough mountainous types (Undifferentiated) — R
- Swampy areas

Soils Surveyed by C.W. Mann and James E. Ferguson

Scale 1 inch = 1 mile
Contour interval 100 feet.

Field Operations
Bureau of Soils
1909